

Name _____
Date _____

You must show ALL work to receive full credit!!
Solve each equation for the indicated variable.

Answers in improper fractions simplified

1. $\frac{5x}{9+1} = \frac{x+6}{5}$

$$\begin{aligned} 10(x+6) &= 5(5x) \\ 10x+60 &= 25x \\ -10x & \quad -10x \\ \hline 60 &= 15x \\ 4 &= x \end{aligned}$$

2.

$$\frac{3}{2}x = -8\frac{4}{3}$$

3. $5+3x = 3(1+x)+2$

$$\begin{aligned} 5+3x &= 3+3x+2 \\ 5+3x &= 3x+5 \end{aligned}$$

Any sol.

4.

$$\frac{6}{x-9} = 2$$

$$\begin{aligned} 12 &= x-9 \\ +9 & \quad +9 \\ \hline 21 &= x \end{aligned}$$

6.

$$3x - (8+3x) = 8$$

$$3x - 8 - 3x = 8$$

$-8 \neq 8$ False
No solution

Solve for the indicated variable.

8.

$$2A = \frac{1}{2}bh \quad \text{for } h$$

$$2A = b \cdot \frac{h}{2} \quad k = \frac{2A}{b}$$

9.

$$P = 2l + 2w \quad \text{for } w$$

$$P - 2l = 2w$$

$$w = \frac{P - 2l}{2}$$

11.

$$\begin{aligned} 2c &= 3b - 4 \\ +4 & \quad +4 \\ \hline 2c+4 &= 3b \\ \frac{2c+4}{3} &= \frac{3b}{3} \\ b &= \frac{2c+4}{3} \end{aligned}$$

$$\begin{aligned} ax - c &= b \\ +c & \quad +c \\ \hline ax &= b+c \\ \frac{ax}{a} &= \frac{b+c}{a} \\ x &= \frac{b+c}{a} \end{aligned}$$

Write an equation and solve.

Translate the verbal sentence into an equation and then SOLVE.

Twice a number increased by 5 is the same as the number decreased by seventeen.

Equation: $2x + 5 = x - 17$ Solution: $x = -22$

$$x + 5 = -17$$

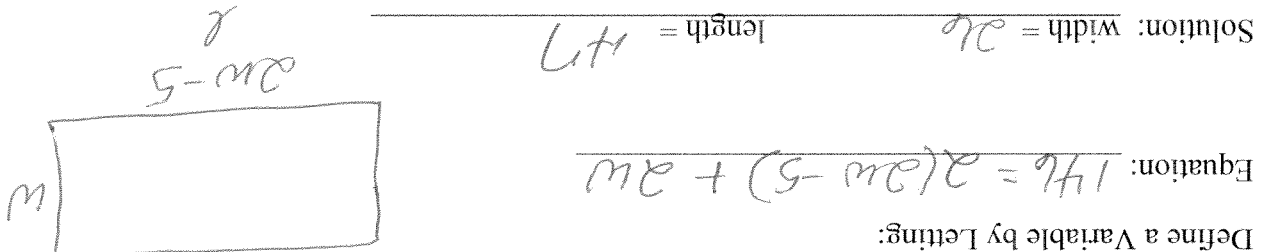
Define a variable. Write an equation and then solve.

$$x = 2w - 5$$

The length of a rectangle is 5 less than twice the width. The perimeter of the rectangle is 146. Find the dimensions of the rectangle. (Hint: Draw a rectangle and label the dimensions.) ($P = 2l + 2w$)

Define a Variable by Letting:

Equation: $146 = 2(2w - 5) + 2w$



$$x = 2w - 5$$

(Multiple Choice): If $\frac{x}{6} - 2 = 4$, the value of $\frac{x}{4}$ is 9.

$$\frac{x}{6} = 6$$

$$w = 26$$

$$2w = 52$$

$$2w - 10 = 146$$

$$4w + 10 + 2w = 146$$

- a. 1 b. 9 c. 12 d. 36

Circle all equivalent equations to: $\bar{A} = \frac{a+b+c}{3}$

- a. $-(-3A + a + b) = c$ b. $3A - (a + b) = c$ c. $\frac{3}{3A} = a + b + c$ d. $A = \frac{a+b+c}{3}$ e. $a = 3A + b + c$ f. $3A - a = b + c$

$$-3A = -a + b + c$$